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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Kim B. Roberts

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08/23/2005

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EXAMINER

PAYNE, DAVID C

ART UNIT

PAPER NUMBER

2638

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/014,353

Applicant(s)

ROBERTS ET AL.

Examiner

David C. Payne

Art Unit

2638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-15,23 and 26-31 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 7-15,23 and 26-31 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim(s) 1, 6-9, 11-16, 22 and 25 is/are rejected under 35 U.S.C. 102(e) as being anticipated by Miyazaki US 6,414,772 B2 (Miyazaki).

Regarding claim 1, Miyazaki disclosed

A method of generating a wave division multiplexed (WDM) optical signal in order to reduce non-linear signal degradation effects on neighboring optical channels, comprising the step of delivering optical waveforms conveyed over the neighboring optical channels to a multiplexer for generating the optical signal in a condition that reduces a probability of correlation between bit patterns of the optical waveforms conveyed over the neighboring optical channels. (e.g., col./lines: 2/30-67, 8/37-67)

Regarding claim 16, Miyazaki disclosed

A system for generating a wave division multiplexed (WDM) optical signal, comprising: an optical transmitter for generating a respective optical waveform for each channel in the WDM optical signal; a multiplexer connected to the optical transmitters, the multiplexer being adapted to multiplex the respective optical waveforms into the WDM optical signal; and means for delivering the respective optical waveforms to the multiplexer in a condition in which a probability of correlation between bit patterns of the optical waveforms conveyed over neighboring ones of the channels is reduced. (e.g., col./lines: 2/30-67, 8/37-67)

Regarding claim 6, Miyazaki disclosed wherein the step of delivering comprises steps of: receiving respective data signals at each of a plurality of transmitters for transmitting a respective one of the optical waveforms; encoding each of the data signals using a respective encoding scheme selected to reduce data correlation on neighboring optical channels; and transmitting the encoded data signals to the multiplexer. (e.g., col./lines: 2/30-67, 8/37-67)

Regarding claims 7 and 8, Miyazaki disclosed wherein the step of encoding comprises steps of: generating a respective scrambling pattern for each of the transmitters so that different scrambling patterns are generated for transmitters for neighboring optical channels; and applying the respective scrambling patterns to respective data signals to be transmitted over the respective neighboring optical channels. (e.g., col./lines: 2/30-67, 8/37-67)

Regarding claim 9, Miyazaki disclosed wherein the step of generating a respective scrambling pattern for each of the transmitters comprises steps of: generating a pseudo-random bit sequence; extracting from the pseudo-random bit sequence, in accordance with a predefined algorithm, a scrambling pattern for each of the neighboring optical channels, so that the extracted scrambling patterns are substantially decorrelated at any given offset. (e.g., col./lines: 8/20-37, 10/30-40)

Regarding claim 11, Miyazaki disclosed further comprising a step of selecting a decoding scheme to apply to data received on the neighboring optical channels. (Figure 15)

Regarding claim 12, Miyazaki disclosed wherein the step of selecting comprises reading a hardware configuration setting in a decoder circuit

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of a receiver for the optical channel. (e.g., col./lines: 10/30-50)

Regarding claim 13, Miyazaki disclosed

wherein the step of selecting comprises a step of reading a memory that stores a decoding scheme received in a message when the optical channel was commissioned. (e.g., col./lines: 10/30-50)

Regarding claim 14, Miyazaki disclosed

wherein the step of selecting comprises a step of searching through a predefined set of decoding schemes adopted to decode data received on the optical channel. (Figure 15)

Regarding claim 15, Miyazaki disclosed

wherein the step of performing a search procedure comprises at least one iteration of the steps: selecting a decoding scheme; applying the selected decoding scheme to at least a part of the data; calculating a bit error rate for the decoded data; and determining if the bit error rate is below a predetermined threshold. (e.g., col./lines: 5/25-45)

Regarding claim 22, Miyazaki disclosed wherein the means for delivering the respective optical waveforms comprises a scrambler for each respective transmitter, the scrambler being adapted to apply a respective scrambling pattern to a data signal to be transmitted by a respective transmitter. (e.g., col./lines: 8/20-37, 10/30-40)

Regarding claim 25

Asahi disclosed A WDM optical signal comprising at least two neighboring channels traveling in an optical fiber, wherein optical waveforms associated with the respective neighboring channels carry data that is substantially uncorrelated at any point along the optical fiber. (e.g., col./lines: 2/30-67, 8/37-67)

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3. Claim(s) 1-4, 16-19, 24 and 25 is/are rejected under 35 U.S.C. 102(e) as being anticipated by Asahi US 6,619,867 B1 (Asahi).

Regarding claim 1, Asahi disclosed

A method of generating a wave division multiplexed (WDM) optical signal in order to reduce non-linear signal degradation effects on neighboring optical channels, comprising the step of delivering optical waveforms conveyed over the neighboring optical channels to a multiplexer for generating the optical signal in a condition that reduces a probability of correlation between bit patterns of the optical waveforms conveyed over the neighboring optical channels. (e.g., col./lines: 5/30-67, 6/1-67, 7/1-45)

Regarding claims 3, 4, 19

Asahi disclosed wherein the step of regulating transmitters comprises a step of offsetting respective clock signals governing the respective transmitters for the neighboring optical channels enough that dispersion acting on the optical signal as it is transmitted over a WDM optical link does not cause the optical waveforms to become re-aligned as the optical link is traversed. (Figure 26, col./lines: 20/30-67, 21/1-5).

Regarding claim 16, Asahi disclosed

A system for generating a wave division multiplexed (WDM) optical signal, comprising: an optical transmitter for generating a respective optical waveform for each channel in the WDM optical signal; a multiplexer connected to the optical transmitters, the multiplexer being adapted to multiplex the respective optical waveforms into the WDM optical signal; and means for delivering the respective optical waveforms to the multiplexer in a condition in which a probability of correlation between bit patterns of the optical waveforms conveyed over neighboring ones of the channels is reduced. (e.g., col./lines: 5/30-67, 6/1-67, 7/1-45)

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Regarding claim 2, 17

Asahi disclosed method/system wherein the step of delivering comprises a step of regulating transmitters of respective optical waveforms to ensure that each transmitter transmits a respective optical waveform at a phase offset with respect to phases of transmitters for neighboring optical channels. (e.g., col./lines: 5/30-67, 6/1-67, 7/1-45)

Regarding claim 18 wherein each of the optical transmitters comprises a clock offset circuit that is adapted to offset a synchronizing clock signal by a predetermined time interval that is different from an offset applied by the clock offset circuits of transmitters for the neighboring channels. (see e.g., Figure 4)

Regarding claim 24

Asahi disclosed WDM optical signal comprising at least two neighboring channels traveling in an optical fiber, wherein optical waveforms associated with the respective neighboring channels are transmitted asynchronously. (e.g., col./lines: 5/30-67, 6/1-67, 7/1-45)

Regarding claim 25

Asahi disclosed A WDM optical signal comprising at least two neighboring channels traveling in an optical fiber, wherein optical waveforms associated with the respective neighboring channels carry data that is substantially uncorrelated at any point along the optical fiber. (e.g., col./lines: 5/30-67, 6/1-67, 7/1-45)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asahi US 6,619,867 B1 (Asahi).

Re claims 5, 20 and 21, Asahi disclosed the aforementioned invention but not the use of patch cords. However, Asahi did disclose using different lengths of fiber switched into the network (Figure 26) in order that dispersion would not realign signals. It would have been obvious to one of ordinary skill in the art at the time of invention to use patch cords rather than the Asahi mechanism since patch cords are a simple well known rudimentary means to switch modified fiber lengths in the network.

6. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asahi US 6,619,867 B1 (Asahi) in view of Miyazaki US 6,414,772 B2 (Miyazaki).

Asahi disclosed the aforementioned invention but not the use of a scrambling pattern along with the non-aligned data. Miyazaki disclosed offsetting signal start times so as to un-align data. It would have been obvious to one of ordinary skill in the art at the time of invention to scramble data in the Asahi invention as does Miyazaki do further de-correlate signals. (e.g., col./lines: 2/30-67, 8/37-67)

Allowable Subject Matter

7. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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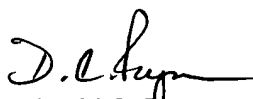
Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Payne whose telephone number is (571) 272-3024. The examiner can normally be reached on M-F, 7a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dcp


David C. Payne
Patent Examiner
AU 2638